

B. Remarks

1. Status of the Claims

Claims 1-14 and 18-40 are pending in the application. Claims 1, 4-6, 8, 10, 19-25, 27, 28, 31-33, 36 and 37 stand rejected. The examiner has objected to claims 2, 3, 7, 9, 11, 26, 29, 30, 34 and 35 as being dependent on a rejected base claim, but has indicated that these claims would be allowable if rewritten in independent form including all of the limitations of the base claims and any intervening claims. The examiner has allowed claims 12-14, 18 and 38-40.

Applicants' attorney briefly discussed the status of the application and claims during a telephonic interview on November 19, 2001. However, the examiner indicated he could not give a binding decision on issues of claim allowability in the absence of his primary examiner. Therefore, agreement was not reached.

2. The Rejection Under 35 U.S.C. § 102(b) Based on Doyle

The examiner has rejected claim 1 under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 6,009,219 to Doyle ("Doyle"). Applicants respectfully traverse this basis for rejection. Claim 1, as amended, recites "a substrate comprising at least one groove, at least one of said first collimator and said second collimator received in said groove." Doyle does not disclose or suggest a substrate comprising at least one groove which receives at least one collimator (and neither does any other cited prior art). Applicants respectfully request reconsideration and allowance of claim 1 in view of the foregoing.

3. The Rejections Under 35 U.S.C. § 102(e) Based on Chen et al.

The examiner has rejected claims 1, 8, 10, 19-25, 27-28, 31-33 and 36-37 under 35 U.S.C. § 102(e) as being anticipated by U.S. Publication No. US 2003/0081885 A1 to Chen et al. ("Chen"). Applicants respectfully traverse the foregoing rejections, as follows.

a. Claims 1 and 8

Claim 1, as amended, recites "a substrate comprising at least one groove, at least one of said first collimator and said second collimator received in said groove in optical alignment with said prism. Chen does not disclose a substrate comprising at least one groove which receives at least one collimator. Claim 8, as amended, recites "a substrate comprising at least one groove" and "placing said first collimator into said groove of said substrate." Chen does not disclose or

suggest a substrate comprising at least one groove or placing a collimator into such a groove (and neither does any of the other cited prior art). Applicants respectfully request reconsideration and allowance of claims 1 and 8 in view of the foregoing.

b. Claim 10

Claim 10, as amended, recites “forming a prism in-situ on said substrate.” Chen does not disclose or even suggest forming a prism in-situ on a substrate. Indeed, Chen simply discloses a prism mounted on a holder. *See, e.g.*, Chen at ¶ 0029, ll. 3-4. Based on the disclosure, one skilled in the art would understand Chen to teach mounting a discrete, pre-existing prism onto a holder.

Applicants do not understand the relevance of the examiner’s statement that Chen discloses that “the 1st and 2nd collimators are formed into the extension 32 of the substrate 31,” as Applicants recite no similar limitation. Further, the foregoing statement is inaccurate. Importantly, Chen includes no teaching or suggestion whatsoever that the collimators are formed into extension 32. In fact, Chen does not disclose how the first and second collimators come to be fitted in extension 32 of substrate 31. However, one of ordinary skill in the art would understand that the collimators are fabricated as discrete components and then are somehow inserted in/secured to extension 32.

Applicants respectfully request reconsideration and allowance of claim 10 in view of the foregoing.

c. Claims 19-25 and 27-28

Claim 19, as amended, recites “a substrate comprising a first groove, said first groove receiving at least one of said first optical fiber and said second optical fiber.” Claims 20-25 and 27-28 depend from claim 19 and, therefore, also include the foregoing limitation. Chen does not disclose or suggest a substrate comprising a groove receiving at least a first or second optical fiber (and neither does any of the other cited prior art). Applicants respectfully request reconsideration and allowance of these claims in view of the foregoing.

d. Claims 31-33 and 36-37

Claim 31 recites a “substrate comprising at least a first groove” in connection with the step of “placing one of said first optical fiber and said second optical fiber into said first

groove.” As discussed above in connection with claims 19-25, Chen does not disclose or suggest a substrate having a groove receiving an optical fiber. As such, Chen does not teach at least the foregoing step. Applicants respectfully request reconsideration and allowance of these claims in view of the foregoing.

4. The Rejection Under 35 U.S.C. § 103(a) Based on Hunter

The examiner has rejected claims 1, 5 and 6 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,137,933 to Hunter. Applicants respectfully traverse the foregoing rejection for the same reasons set forth in their response to the previous Office Action and provide the following further arguments in support of their position.

Applicants’ invention uses a substrate comprising one or more channels or grooves to effect optical alignment of optical components. For example, in a preferred embodiment, Applicants’ invention takes advantage of precisely aligned grooves in a silicon v-groove chip to align first and second collimators with each other and a retroreflective element, such as a prism. In another embodiment, a substrate comprising a single channel facilitates such alignments. The specification and claims contemplate still further embodiments wherein a substrate comprising at least one channel or groove is used to effect optical alignment of optical components.

Hunter simply does not teach use of a substrate for effecting such optical alignment, for example optical alignment of first and second collimators. Indeed, Hunter teaches away from use of a separate substrate. The examiner’s basis for rejection speaks to this very point:

Although lenses 12 and 14 are not explicitly referenced to as substrates, it would have been obvious at the time the invention was made to one skilled in the art that the device 10 holds the retro-reflective element 18 in optical alignment with the fibers and lenses, and there would be no need for an additional substrate, since the prism is already held in alignment.

July 22, 2003 Office Action at page 5, lines 3-7 (emphasis added). For this reason alone, Applicants’ invention cannot be deemed obvious based on Hunter, either taken alone or in combination with the other cited references.

Further, to the extent that Hunter mentions alignment, it does not teach how alignment is effected. The only seemingly relevant portion of Hunter states: “the homogeneous index boot lenses provide large, planar surfaces for device assembly, alignment and the integration of

additional device functions.” Hunter at col. 3, ll. 43-50. However, Hunter does not elaborate on the structure of the foregoing homogeneous index boot lenses, or explain how they facilitate alignment. Assuming such lenses indeed comprise planar surfaces, Hunter does not teach how such planar surfaces are used to effect alignment, particularly with respect to eliminating yaw between the respective lens axes.

Notwithstanding, without prejudice and solely for the purpose of expediting issue of the claims, Applicants hereby amend claim 1 to recite “a substrate comprising at least one groove, at least one of said first collimator and said second collimator received in said groove in optical alignment with said prism.” Claims 5 and 6 depend from claim 1 and therefore include this limitation, as well. Hunter does not disclose or even suggest a substrate comprising at least one groove, such groove receiving at least a first or second collimator. Applicants respectfully request reconsideration and allowance of these claims in view of the foregoing.

5. The Rejection Under 35 U.S.C. § 103(a) Based on Chen

The examiner has rejected claim 4 under 35 U.S.C. § 103(a) as being unpatentable over Chen. Applicants respectfully submit that this basis for rejection is moot because claim 4 depends from claim 1, which Applicants have shown to be allowable, as discussed above. Applicants respectfully request reconsideration and allowance of this claim in view of the foregoing.

6. New Claims

Applicants have added new claims 41-45 to further define the invention. Applicants respectfully submit that these claims are supported by the specification and drawings as filed, and that new matter has not been added.

7. Summary and Conclusion

Applicants respectfully submit that this paper is fully responsive to the rejections and objections set forth in the Office Action and that the application is in condition for allowance. Accordingly, Applicants respectfully request reconsideration thereof and issuance of a Notice of Allowance.

Respectfully submitted,



Mark P. Vrla
Registration No. 43,973
Attorney for Applicants

JENNER & BLOCK, LLC
One IBM Plaza
Chicago, IL 60611
(312) 222-9350

Date: November 24, 2003

996184